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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,146	11/06/2006	Kenichi Shiraishi	128985	3604
25944	7590	09/03/2008		
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			EXAMINER MATHEWS, ALAN A	
			ART UNIT 2851	PAPER NUMBER
			MAIL DATE 09/03/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/588,146	<b>Applicant(s)</b> SHIRAISHI, KENICHI	
	<b>Examiner</b> ALAN A. MATHEWS	<b>Art Unit</b> 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-17 is/are allowed.
- 6) ☒ Claim(s) 1,2,7-10 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/1/06 &amp; 1/4/07 &amp; 10/9/07</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 spans three statutory categories. First, claim 14 recites a “device” ( a product-by-process), secondly it recites the process of “using” the exposure apparatus of claim 1, and thirdly, it recites the exposure apparatus. This creates confusion as to what is actually being claimed. Furthermore, claiming the process by reciting “using” the apparatus without setting forth any steps involved in the process is indefinite (see MPEP 2173.05 (q)).

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 7, 8, and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese patent document JP 6-124873 (cited in one of Applicant's IDSs along with an English translation). The Japanese patent document JP 6-124873

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discloses in figure 1 and paragraphs # 0014 and # 0015 of the English translation an exposure apparatus which exposes a substrate 2 via projection optical system 4 and a liquid 30. Pump 22 is the liquid supply mechanism that supplies the liquid. Paragraph # 0021 states “or to measure the flow condition of the liquid 30 of this part with refractometry equipment 24, and just to make a sequence continue, when a flow stops.” By measuring when the flow stops, the device in the Japanese patent document JP 6-124873 is, in effect, measuring the time during which the supply of liquid from the liquid supply mechanism is stopped. With respect to claim 2, the predetermined allowable time could be seconds or a fraction of a second in order “to make a sequence continue, when a flow stops”. With respect to claim 7, the projection optical system faces the stage 14 (at least indirectly). With respect to claim 8, the liquid supply mechanism is restarted with the substrate held on the substrate stage. With respect to claim 14, claim 14 is a product-by-process, with the product being the device and the process is “using” the apparatus according to claim 1. MPEP 2113 states **that the determination of patentability of a product-by-process claim is based on the product itself. The patentability of a product does not depend on its method of production.** The device or wafer produced in the Japanese patent document JP 6-124873 appears to be the same product as produced by claim 14. With respect to claims 12 and 13, element 14 or element 13 is the stage.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Japanese patent document JP 6-124873 as applied to claim 1 above, and further in view of the Japanese patent document JP 10-303114 (cited in one of Applicant's IDSs, along with an English translation) or the International Publication WO 99/49504 (cited in this office action along with an English translation) or Nakagawa et al. (U. S. Patent Application Publication No. 2003/0136763 A1, cited in one of Applicant's IDSs). The Japanese patent document JP 6-124873 discloses the invention except for specifically disclosing the use of pure water and the use of a valve. The Japanese patent document JP 10-303114 discloses in the abstract the use of pure water as the immersion liquid. The Japanese patent document JP 10-303114 further discloses the use of bulb 62 (which is a valve) to control supply of the liquid. The International Publication WO 99/49504 discloses on line 1 of page 15 of the English translation, the use of "purified water" as the immersion liquid. Nakagawa et al. discloses in the Abstract the use of ultrapure water. Nakagawa et al. further discloses the use of valves to control the flow of the supply water. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the Japanese

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patent document JP 6-124873 with pure water in view of either the Japanese patent document JP 10-303114 or the International Publication WO 99/49504 or Nakagawa et al. for the purpose of having fewer contaminants and thus producing a more accurate final product. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the Japanese patent document JP 6-124873 with a valve to control the flow of liquid from the liquid supply mechanism in view of either the Japanese patent document JP 10-303114 or Nakagawa et al. for the purpose of providing better control of the liquid.

### ***Allowable Subject Matter***

6. Claim 15 – 17 are allowed. Claims 3-6 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reasons for the indicated allowability of the claims are as follows:

The prior art does not disclose or suggest wherein the liquid supply mechanism comprises a flow path that supplies the liquid, and the allowable time is determined taking a proliferation time of bacteria in the flowpath into a consideration in combination with all the other elements recited in the parent claims to dependent claim 3.

The prior art does not disclose or suggest wherein the exposure light is irradiated onto the substrate with an end face of the projection optical system contacting the liquid, and the allowable time is determined taking a drying time of liquid stuck to the end face of the projection optical system into a consideration in combination with all the other elements recited in the parent claims to dependent claim 4.

The prior art does not disclose or suggest wherein the liquid supply mechanism comprises a flowpath that supplies the liquid and a flow meter that measures an amount of flow of the liquid along the flowpath, and the stop of the supply of the liquid from the liquid supply mechanism is determined based on a measurement result of the flow meter in combination with all the other elements recited in the parent claim to dependent claim 11.

The prior art does not disclose or suggest measuring an elapsed time from when an end face of an image surface side of the projection optical system becomes in an immersed state to when it becomes a non-immersed state in combination with all the other elements recited in independent claim 15.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents cited in the PTO-1449s are cited for the same reasons they were cited in Applicant's IDSs. The patent to Kobayashi is cited to show a patent family member of WO 2004/105107 A1 cited in one of Applicant's IDSs

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN A. MATHEWS whose telephone number is (571)272-2123. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alan A. Mathews/  
Primary Examiner  
Art Unit 2851

AM